

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2) 5000

69/508514

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents  
United States Patent and Trademark  
Office  
Box PCT  
Washington, D.C. 20231  
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 10 May 2000 (10.05.00)	
International application No. PCT/IB99/01430	Applicant's or agent's file reference MJPCb539/94
International filing date (day/month/year) 26 July 1999 (26.07.99)	Priority date (day/month/year) 24 July 1998 (24.07.98)
Applicant DUWAT, Patrick et al	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

16 February 2000 (16.02.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Pascal Piriou
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

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# PATENT COOPERATION TREATY

## PCT

REC'D 15 NOV 2000

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### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference MJPcb539/94	<b>FOR FURTHER ACTION</b>		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/IB99/01430	International filing date (day/month/year) 26/07/1999	Priority date (day/month/year) 24/07/1998	
International Patent Classification (IPC) or national classification and IPC C12N1/20			
Applicant INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 16/02/2000	Date of completion of this report 13.11.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Vollbach, S Telephone No. +49 89 2399 8715 

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB99/01430

## I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).)*:

### Description, pages:

1-17 as originally filed

### Claims, No.:

1-13 as originally filed

### Drawings, sheets:

1/8-8/8 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/IB99/01430

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**IV. Lack of unity of invention**

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.  
☐ paid additional fees.  
☐ paid additional fees under protest.  
☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.  
☒ not complied with for the following reasons:  
**see separate sheet**

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.  
☐ the parts relating to claims Nos. .

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims 1-9,12
	No: Claims 10,11,13
Inventive step (IS)	Yes: Claims
	No: Claims 1-9,12

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Industrial applicability (IA)    Yes:    Claims    1-13  
   No:    Claims

2. Citations and explanations  
**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/IB99/01430

1. The present application relates to a process for preparing a lactic acid bacterial starter culture, the starter culture obtained by said process, the use of a porphyrin compound for increasing the survival of lactic bacteria and the use of the starter culture for preparing a fermented product.

2. The following documents are referred to in the present communication.

D1: EP-A-0 430 406 (MEIJI MILK PROD CO LTD) 5 June 1991 (1991-06-05) cited in the application

D2: DATABASE WPI Section Ch, Week 9212 Derwent Publications Ltd., London, GB; Class B04, AN 92-092889 XP002105963 & JP 04 036180 A (MEIJI MILK PROD CO LTD), 6 February 1992 (1992-02-06) cited in the application

D1 and D2 both relate to the fermentative production of diacetyl and acetoin using lactic acid bacteria which process comprises culturing the cells under aerobic conditions and adding at least one porphyrin compound in a concentration range of 0.1-500 micro M. It is disclosed in D2 that various useful compounds are produced by culturing lactic acid bacteria. However, as lactic acid accumulates and the pH of the culture medium falls, the multiplication of the bacteria and the production of useful substances is suppressed. The new culturing conditions suppress the pH drop and as a result, the bacteria grow to higher density and produces useful substances more efficiently.

In view of said prior art, the following considerations should be taken into account. The difference vis à vis said prior art is said to consist in the fact that the compounds produced by the bacterial cell of the application are not toxic. As a result the bacteria can be recovered after the fermentation process and starter cultures can be obtained. Although it is agreed that none of the prior art documents describe the viability of the bacteria and their ability to restart growth, said features cannot substantiate an inventive step for the processes of claims 1-9. It is already known in the art that under the above conditions the bacteria grow to higher density and produce useful substances more efficiently. In addition, it is considered trivial that no toxic substances should be produced, if the intention was to produce a starter culture. Therefore, given the teaching of D1 and D2 a person skilled in the art knows that the growth i.e. the viability of the lactic acid bacteria is enhanced under aerobic conditions and the addition of at least one iron porphyrin. There is no reason to believe that the cells after

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/IB99/01430

fermentation are not viable any longer and can thus not be used to initiate growth in a further fermentation process. The person skilled in the art being confronted with the problem of providing improved starter cultures would combine the teaching of D1 and/or D2, where improved growth (i.e. less stress associated with the decrease in pH) has been demonstrated under the conditions indicated, with the general common technical knowledge and would then arrive at the claimed invention. Thus an inventive step for claims 1-9 cannot be acknowledged (Article 33(3) EPC). The same objection applies to present claim 12.

Present claim 10 does not contain any feature distinguishing the starter culture from the lactic acid bacterial cultures disclosed in D1 and D2. In general, the finding of a new parameter of a known product does not render the product as such new. Furthermore claim 10 is not restricted to cultures prepared by the method of claims 1-9 but covers any culture of lactic acid bacterial starter culture which are undoubtedly known for a long time.

In addition, also the application of lactic acid bacteria in the preparation of a fermented product belongs to the state of the art (see e.g. description of the present application as well as all documents cited in the search report). Therefore present claims 10,11 and 13 are not new in the sense of Article 33(2) PCT.

3. As a consequence of said novelty objection, the present set of claims splits up into several groups of inventions no longer connected by a common inventive link. The link between independent claims 1,10,11,12,13 are the lactic acid bacteria. However, they are not new with respect to D1,D2 and any other culture of lactic acid bacteria. Therefore, the claims are also inadmissible under Rules 13.1-13.3 PCT. In view of the objections raised above, this objection will not followed in the preliminary examination phase but will be prosecuted once the application enters the European regional phase.

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>MJPcb539/94</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/IB 99/01430</b>	International filing date (day/month/year) <b>26/07/1999</b>	(Earliest) Priority Date (day/month/year) <b>24/07/1998</b>
Applicant <b>INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. \_\_\_\_\_

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/IB 99/01430

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N1/20 C12N1/04 //(C12N1/20,C12R1:46)

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 430 406 A (MEIJI MILK PROD CO LTD) 5 June 1991 (1991-06-05) cited in the application abstract ---	1-4
X	DATABASE WPI Section Ch, Week 9212 Derwent Publications Ltd., London, GB; Class B04, AN 92-092889 XP002105963 & JP 04 036180 A (MEIJI MILK PROD CO LTD), 6 February 1992 (1992-02-06) cited in the application abstract ---	1-4
A	US 2 966 445 A (ROLAND F. BEERS) 27 December 1960 (1960-12-27) the whole document --- -/--	1-4



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## ° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

5 November 1999

Date of mailing of the international search report

15/11/1999

Name and mailing address of the ISA

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Authorized officer

Lejeune, R

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 99/01430

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>DATABASE FSTA 'Online! INTERNATIONAL FOOD INFORMATION SERVICE (IFIS), FRANKFURT/MAIN, DE LINDGREN B ET AL: "Milk with reduced lactose content for preparation of lactic acid starter culture concentrates." XP002098993 abstract &amp; XIX INTERNATIONAL DAIRY CONGRESS, vol. 1E, 1974, Swedish Dairies' Assoc., Malmö, Sweden -----</p>	

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 99/01430

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0430406	A	05-06-1991	JP 2901008 B	02-06-1999
			JP 3219884 A	27-09-1991
			AU 634603 B	25-02-1993
			AU 6700290 A	06-06-1991
			CA 2029249 A	29-05-1991
			DE 69027098 D	27-06-1996
			NZ 236211 A	28-07-1992
			US 5075226 A	24-12-1991
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JP 4036180	A	06-02-1992	NONE	
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US 2966445	A	27-12-1960	NONE	
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